

Amendments to the Claims:

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present invention.

Claims 1-19 (canceled)

20. (Previously presented) A tyre-assembling apparatus, comprising:

an assembling drum comprising first and second halves axially opposed along a geometric axis of the drum, each of the halves comprising a plurality of circumferentially-distributed radial sectors;

radial-movement devices associated with each of the halves to selectively translate corresponding radial sectors between a contracted condition, wherein the radial sectors are disposed closer to the geometric axis of the drum, and an expanded condition, wherein the radial sectors are disposed spaced apart from the geometric axis of the drum; and

at least one axial-movement actuator to translate the halves relative to each other between an approaching condition, wherein the halves are close to each other, and a spaced-apart condition, wherein the halves are spaced apart from each other along the geometric axis of the drum;

wherein each of the radial sectors comprises:

a holding member, defining an engagement seat of an annular anchoring structure to a bead-part of a carcass sleeve fitted on the drum; and

a supporting member linked, relative to the holding member, in a position axially-internal to the holding member and movable between a first operating condition, wherein the supporting member is axially-spaced-apart from the holding member to provide a supporting seat to at least one ply that is part of the carcass sleeve, and a second operating condition, wherein the supporting member is disposed axially close to the holding member to enable mutual approaching of the halves;

wherein the supporting members associated with the first and second halves, respectively, have abutment surfaces facing each other that are spaced apart from each other by an amount smaller than a stroke carried out by the halves between the spaced-apart condition and the approaching condition,

and wherein the supporting members abut against each other by respective abutment surfaces in the approaching condition.

21. (Previously presented) The apparatus of claim 20, wherein the supporting member is slidably engaged along at least one guide rod extending in cantilevered fashion from the holding member.

22. (Previously presented) The apparatus of claim 21, wherein the at least one guide rod extends in parallel to the geometric axis of the drum.

23. (Previously presented) The apparatus of claim 20, comprising at least one elastic return member operatively associated with the supporting member to elastically urge the supporting member away from the holding member.

24. (Previously presented) The apparatus of claim 21, comprising at least one return spring associated with the at least one guide rod to elastically urge the supporting member away from the holding member.

25. (Previously presented) The apparatus of claim 21, wherein the guide rods of the supporting members associated with the first and second halves, respectively, are angularly offset relative to each other.

26. (Previously presented) The apparatus of claim 20, wherein each supporting member of the first half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the second half during mutual approaching of the halves, and wherein each supporting member of the second half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the first half during mutual approaching of the halves.

27. (Previously presented) The apparatus of claim 20, wherein the supporting members associated with each of the halves define a substantially-continuous cylindrical supporting surface under a radially-expanded condition.

28. (Previously presented) The apparatus of claim 20, wherein each of the supporting members has end slots slidably housing end projections provided on circumferentially-adjointing supporting members.

29. (Previously presented) The apparatus of claim 20, wherein each of the holding members comprises an axially-inner portion and an axially-outer portion, movable selectively and independently of each other under action of the radial-movement devices.

30. (Previously presented) The apparatus of claim 20, wherein the radial-movement devices comprise:

a supporting hub coaxial with the geometric axis of the drum, slidably engaging the holding members of respective radial sectors in a direction radial to the geometric axis of the drum;

at least one radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

transmission connecting rods operatively engaged between the at least one radial-movement actuator and the holding member of one of the radial sectors to cause

a radial movement of the holding member following an axial movement transmitted by the at least one radial-movement actuator.

31. (Previously presented) The apparatus of claim 29, wherein the radial-movement devices comprise:

a supporting hub coaxial with the geometric axis of the drum;

first guide elements for slidably engaging the axially-inner portions of the holding members with the supporting hub, in a direction radial to the geometrical axis of the drum;

at least one first radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto;

first transmission connecting rods operatively engaged between the at least one first radial-movement actuator and one of the axially-inner portions to cause a radial movement of the axially-inner portion following an axial movement transmitted by the at least one first radial-movement actuator;

second guide elements for slidable engaging the axially-outer portions of the holding members with the supporting hub, in a direction radial to the geometric axis of the drum;

at least one second radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

second transmission connecting rods operatively engaged between the at least one second radial-movement actuator and one of the axially-outer portions to cause a

radial movement of the axially-outer portion following an axial movement transmitted by the at least one second radial-movement actuator.

32. (Previously presented) The apparatus of claim 31, wherein the axially-inner portions of the holding members include powered axially-inner portions and driven axially-inner portions, wherein the powered axially-inner portions are operated by respective radial-movement devices, and wherein the driven axially-inner portions are dragged along by the radial movement of the powered axially-inner portions.

33. (Previously presented) The apparatus of claim 20, wherein at least one turning-up device is associated with each of the first and second halves to turn up a side edge of the carcass sleeve around a respective annular anchoring structure.

34. (Previously presented) The apparatus of claim 33, wherein each turning-up device comprises:

a plurality of turning-up levers circumferentially distributed around the geometric axis of the drum, each carrying at least one pressure element facing the drum;

at least one driving member rotatably engaging each of the turning-up levers at a hinging point spaced apart from the at least one pressure element;

operation devices to axially translate the at least one driving member between a rest position, wherein the driving member is axially-spaced-apart from the radial sectors,

and a working position, wherein the driving member is disposed close to the radial sectors.

35. (Previously presented) The apparatus of claim 34, wherein the hinging point of each of the turning-up levers has, relative to the geometric axis of the drum, a radial distance smaller than a radial distance measured from a corresponding pressure element when the driving member is in a rest position.

36. (Previously presented) The apparatus of claim 34, wherein the holding member of each radial sector has, at an axially-outer position, a lead-in surface converging towards the geometric axis of the drum and facing the pressure element carried by at least one of the turning-up levers.

37. (Previously presented) The apparatus of claim 34, wherein each turning-up device comprises at least one elastic element extending around the geometric axis of the drum and operating on the turning-up levers to transmit to the turning-up levers a radial-thrust action toward the geometric axis of the drum.

38. (New) A tyre-assembling apparatus, comprising:
an assembling drum comprising first and second halves axially opposed along a geometric axis of the drum, each of the halves comprising a plurality of circumferentially-distributed radial sectors;

radial-movement devices associated with each of the halves to selectively translate corresponding radial sectors between a contracted condition, wherein the radial sectors are disposed closer to the geometric axis of the drum, and an expanded condition, wherein the radial sectors are disposed spaced apart from the geometric axis of the drum; and

at least one axial-movement actuator to translate the halves relative to each other between an approaching condition, wherein the halves are close to each other, and a spaced-apart condition, wherein the halves are spaced apart from each other along the geometric axis of the drum;

wherein each of the radial sectors comprises:

a holding member, defining an engagement seat of an annular anchoring structure to a bead-part of a carcass sleeve fitted on the drum; and

a supporting member linked, relative to the holding member, in a position axially-internal to the holding member and movable between a first operating condition, wherein the supporting member is axially-spaced-apart from the holding member to provide a supporting seat to at least one ply that is part of the carcass sleeve, and a second operating condition, wherein the supporting member is disposed axially close to the holding member to enable mutual approaching of the halves;

wherein the supporting members associated with the first and second halves, respectively, have abutment surfaces facing each other that are spaced apart from each other by an amount smaller than a stroke carried out by the halves between the spaced-apart condition and the approaching condition,

and wherein the supporting members abut against each other by respective abutment surfaces, during translation of the first and second halves towards the approaching condition and in the approaching condition.

39. (New) The apparatus of claim 38, wherein the supporting member is slidably engaged along at least one guide rod extending in cantilevered fashion from the holding member.

40. (New) The apparatus of claim 39, wherein the at least one guide rod extends in parallel to the geometric axis of the drum.

41. (New) The apparatus of claim 38, comprising at least one elastic return member operatively associated with the supporting member to elastically urge the supporting member away from the holding member.

42. (New) The apparatus of claim 39, comprising at least one return spring associated with the at least one guide rod to elastically urge the supporting member away from the holding member.

43. (New) The apparatus of claim 39, wherein the guide rods of the supporting members associated with the first and second halves, respectively, are angularly offset relative to each other.

44. (New) The apparatus of claim 38, wherein each supporting member of the first half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the second half during mutual approaching of the halves, and wherein each supporting member of the second half may be translated toward a respective holding member due to a thrust action caused by one or more supporting members of the first half during mutual approaching of the halves.

45. (New) The apparatus of claim 38, wherein the supporting members associated with each of the halves define a substantially-continuous cylindrical supporting surface under a radially-expanded condition.

46. (New) The apparatus of claim 38, wherein each of the supporting members has end slots slidably housing end projections provided on circumferentially-adjoining supporting members.

47. (New) The apparatus of claim 38, wherein each of the holding members comprises an axially-inner portion and an axially-outer portion, movable selectively and independently of each other under action of the radial-movement devices.

48. (New) The apparatus of claim 38, wherein the radial-movement devices comprise:

a supporting hub coaxial with the geometric axis of the drum, slidably engaging the holding members of respective radial sectors in a direction radial to the geometric axis of the drum;

at least one radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

transmission connecting rods operatively engaged between the at least one radial-movement actuator and the holding member of one of the radial sectors to cause a radial movement of the holding member following an axial movement transmitted by the at least one radial-movement actuator.

49. (New) The apparatus of claim 47, wherein the radial-movement devices comprise:

a supporting hub coaxial with the geometric axis of the drum;

first guide elements for slidably engaging the axially-inner portions of the holding members with the supporting hub, in a direction radial to the geometrical axis of the drum;

at least one first radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto;

first transmission connecting rods operatively engaged between the at least one first radial-movement actuator and one of the axially-inner portions to cause a radial

movement of the axially-inner portion following an axial movement transmitted by the at least one first radial-movement actuator;

second guide elements for slidable engaging the axially-outer portions of the holding members with the supporting hub, in a direction radial to the geometric axis of the drum;

at least one second radial-movement actuator operatively engaged with the supporting hub and axially movable relative thereto; and

second transmission connecting rods operatively engaged between the at least one second radial-movement actuator and one of the axially-outer portions to cause a radial movement of the axially-outer portion following an axial movement transmitted by the at least one second radial-movement actuator.

50. (New) The apparatus of claim 49, wherein the axially-inner portions of the holding members include powered axially-inner portions and driven axially-inner portions, wherein the powered axially-inner portions are operated by respective radial-movement devices, and wherein the driven axially-inner portions are dragged along by the radial movement of the powered axially-inner portions.

51. (New) The apparatus of claim 38, wherein at least one turning-up device is associated with each of the first and second halves to turn up a side edge of the carcass sleeve around a respective annular anchoring structure.

52. (New) The apparatus of claim 51, wherein each turning-up device comprises:

a plurality of turning-up levers circumferentially distributed around the geometric axis of the drum, each carrying at least one pressure element facing the drum;

at least one driving member rotatably engaging each of the turning-up levers at a hinging point spaced apart from the at least one pressure element;

operation devices to axially translate the at least one driving member between a rest position, wherein the driving member is axially-spaced-apart from the radial sectors, and a working position, wherein the driving member is disposed close to the radial sectors.

53. (New) The apparatus of claim 52, wherein the hinging point of each of the turning-up levers has, relative to the geometric axis of the drum, a radial distance smaller than a radial distance measured from a corresponding pressure element when the driving member is in a rest position.

54. (New) The apparatus of claim 52, wherein the holding member of each radial sector has, at an axially-outer position, a lead-in surface converging towards the geometric axis of the drum and facing the pressure element carried by at least one of the turning-up levers.

55. (New) The apparatus of claim 52, wherein each turning-up device comprises at least one elastic element extending around the geometric axis of the drum and operating on the turning-up levers to transmit to the turning-up levers a radial-thrust action toward the geometric axis of the drum.